REMARKS

This application has been amended so as to place it in condition for allowance at the time of the next Official Action.

The Official Action rejects claims 1 and 3 under 35 USC §112, second paragraph, as being indefinite. Applicants have carefully reviewed the rejected claims and amended the same so as to eliminate the bases for this rejection, the reconsideration and withdrawal of which are therefore respectfully requested.

The Official Action rejects claims 1-4, 7, 11 and 12 under 35 USC §102(b) as being anticipated by BOSE. Reconsideration and withdrawal of this rejection are respectfully requested for the following reasons:

The Official Action takes the position that the coincidences recited as part of the present invention and the errors disclosed by BOSE are the same. The Official Action further suggests that BOSE discloses predicting phase coincidences or error between the stator current (I_s in Figure 1) and set point (I_{s*} and $\pm I_{s*}$ in Figure 1).

In fact, BOSE merely discloses the step of comparing the amplitude of the actual stator current I_s with the amplitude of the desired stator current I_{s*}. This is entirely different from the claim 1 step of predicting phase coincidences between the real stator current and the reference stator current.

On one level, a "comparison" is made in real time and relates to known quantities. In contrast, a "prediction" is a calculated estimate of a quantity not yet known.

In determining current amplitude error, no consideration is given to a possible phase difference between the two compared currents. A current phase coincidence is a period of time with no phase difference between the currents under consideration.

Given this, it is then clear that the BOSE reference does not disclose the step of predicting phase coincidences, as that characteristic is recited in claim 1.

Claim 1 is therefore not anticipated by BOSE.

This is the same for the remaining claims because they all depend on claim 1, directly or indirectly.

The Official Action rejects claims 5, 6 and 8-10 under 35 USC §103(a) as being unpatentable over BOSE in view of ROWAN et al. Reconsideration and withdrawal of this rejection are respectfully requested for the following reasons:

It should be first reminded that the present invention as defined in claim 1 includes:

- the step of predicting phase coincidences between the stator current (real current) and the set point (reference current), and

- the step of commanding the thyristor controller (switches with no rupture capacity) so that the windings (of the

stator) receive current waves when the predicted current phase coincidences occur within a predefined tolerance range.

In the preferred embodiment disclosed in the present application, the step of predicting phase coincidences involves the determination of (i) the time of coincidence t_c and (ii) the angular position α_{xc} relative to the stator for which the direction for the real current and the direction of the reference current would coincide (see the present specification page 11, line 23 to page 12, line 23 and Figure 2). For the sake of simplicity, the time considered is the time when the current wave is at a maximum.

As the voltage controller is of the type employing switches with no rupture capacity, the controller connects selectively two windings of the motor to two phases of the main supply. There are six possible directions for the stator current flow when supplied by two phases out of the three phases of the mains supply.

The six available current directions in the stator are cyclically scanned to determine, taking account of the relative position of the rotor flux and the supply voltage, if it is possible to equalize the position of the real stator current and the position of the reference of the stator current, within a defined tolerance range. If so, the closing of the corresponding switches (for the appropriate two-phase supply) is commanded to so equalize the position of the real current and the position of

the reference current (see the present specification page 12, line 24 to page 16, line 18 and Figures 1-3).

BOSE teaches to use a frequency converter supplied in direct current (see in particular column 3, lines 47-55). This excludes using switches with no rupture capacity, such as switches using thyristors.

It is therefore clear that BOSE cannot suggest the method according to claim 1.

The Examiner indeed recognizes that BOSE does not disclose the use of thyristors (see page 4, last sentence of the third paragraph), but he refers to the ROWAN reference as disclosing the use of thyristors.

It should be incidentally noted that the U.S. Patent 4,996,470 to ROWAN includes drawings which are totally unrelated with the text of this patent.

For your information, we attach herewith a copy of the European counterpart of ROWAN, that is, European Patent Application 0 408 045, which includes the correct drawings.

ROWAN discloses a method of stopping the motor, not a method of controlling the torque of the motor.

According to the Examiner, it would have been obvious to one of ordinary skill in the art at the time of the invention to use BOSE scalar decoupled control for an induction machine with ROWAN electric motor speed control apparatus and method.

Even if this combination would be possible, the resulting system would be extremely costly.

In contrast, the method according to claim 1 enables, with a mere power converter of the voltage controller type employing switches with no rupture capacity, independent adjustment of the torque and the flux and optimization of the motor efficiency and is therefore particularly advantageous from the economic point of view.

In light of the amendments described above and the arguments offered in support thereof, applicants believe that the present application is in condition for allowance and an early indication of the same is respectfully requested.

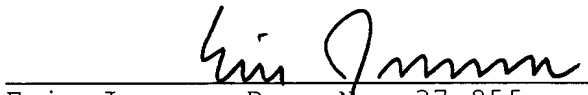
If the Examiner has any questions or requires further clarification of any of the above points, the Examiner may contact the undersigned attorney so that this application may continue to be expeditiously advanced.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any

overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON



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Appendix:

The Appendix includes the following item:

- copy of European Patent Application 0 408 045